

1.

a substrate;

a pixel electrode electrically connected to the drain electrode;

a first insulating layer, a pure amorphous silicon layer, and a doped amorphous silicon layer sequentially layered under the data line;

a gate line electrically connected with the gate electrode; and

wherein the gate pad electrode is on the first insulating layer, wherein the first insulating layer includes an opening that exposes a portion of the gate line, and wherein the gate pad electrode electrically contacts the exposed portion of the gate line.

2. The device of claim 1, wherein the pixel electrode is selected from a group consisting of indium tin oxide (ITO) and indium zinc oxide (IZO).

3. The device of claim 1, wherein the drain electrode has a through hole that exposes a portion of the first insulating layer, and wherein the pixel electrode electrically contacts an inner side surface of the drain electrode via the through hole.

4. The device of claim 1, further including a data pad electrode, wherein the data pad has a data pad contact hole passing through the doped amorphous silicon layer and through the amorphous silicon layer, and wherein data pad electrode electrically contacts an inner side surface of the data pad via the data pad contact hole.

5. The device of claim 4, wherein said data pad electrode is comprised of the same material as said pixel electrode.

6. A method of fabricating a liquid crystal display device, comprising:
preparing a substrate;
forming a gate electrode on the substrate;

forming a gate insulating layer on the gate electrode;

forming a silicon layer on the gate insulating layer;

forming a data line having a source electrode and a data pad, and a drain electrode, on the silicon layer from a metal layer;

forming a passivation layer on the data line, source electrode, and drain electrode such that the passivation layer includes openings that expose portions of the data pad and of the drain electrode;

forming a data pad contact hole through the exposed portion of the data pad, and forming a drain contact hole through the exposed portion of the drain electrode, such that portions of the gate insulating layer are exposed; and

forming a pixel electrode and a data pad electrode by depositing and patterning a transparent conductive material on the passivation layer such that the pixel electrode electrically contacts the drain electrode and such that the data pad electrode electrically contacts the data pad.

7. The method of claim 6, wherein the data pad electrode contacts an inner side surface of the data pad via the data pad contact hole.

8. The method of claim 6, wherein the pixel electrode contacts an inner side surface of the drain electrode via the drain contact hole.

9.

A liquid crystal display device comprising:

a gate line, a gate electrode, and a gate pad on a first substrate;

a gate insulating layer covering the gate line, gate electrode, and gate pad;

a silicon layer on the gate insulating layer;

a data line, a source electrode, a drain electrode, and a data pad on the silicon layer;

a passivation layer covering the data line, source electrode, drain electrode, and data pad;

a pixel electrode and a data pad electrode on the passivation layer;

a drain contact hole passing through the silicon layer, drain electrode, and passivation layer, wherein the pixel electrode electrically contacts the drain electrode via the drain contact hole;

a data pad contact hole passing through the silicon layer, data pad electrode, and passivation layer, wherein the data pad contact hole electrically contacts the data pad via the data pad contact hole;

a gate pad electrode on the gate insulating layer; and

a gate pad contact hole passing through the gate insulating layer, wherein the gate pad electrode electrically contacts the gate pad via the gate insulating layer.

10. A liquid crystal display device according to claim 9, further including a second substrate attached to the first substrate, and a liquid crystal layer between the first substrate and the second substrate.

11. A liquid crystal display device according to claim 9, wherein the pixel electrode contacts an inner side surface of the drain electrode via the drain contact hole.

12. A liquid crystal display device according to claim 9, wherein the data pad electrode contacts an inner surface of the data pad via the data pad contact hole.

13. A liquid crystal display device according to claim 9, wherein the pixel electrode is from a group consisting of indium tin oxide (ITO) and indium zinc oxide (IZO).

14. A liquid crystal display device according to claim 9, wherein the data pad electrode is from a group consisting of indium tin oxide (ITO) and indium zinc oxide (IZO).

15. A liquid crystal display device according to claim 9, wherein the gate pad electrode is from a group consisting of indium tin oxide (ITO) and indium zinc oxide (IZO).

16. A liquid crystal display device according to claim 9, wherein the data line includes molybdenum (Mo).

17. A fabricating method for a liquid crystal display device, the method comprising:

forming a first metal layer into a gate line, a gate electrode, and a gate pad on a substrate;

forming a gate insulating layer on the first metal layer;

forming a silicon layer on the gate insulating layer;

forming a second metal layer into a data line, a source electrode, a drain electrode, a data line, and an auxiliary metal pattern on the silicon layer, wherein the auxiliary metal pattern is over the gate pad;

forming a passivation layer on the second metal layer, the passivation layer including first and second through holes, wherein the first and second through holes pass through the drain electrode and data pad, respectively;

etching away the auxiliary metal pattern and portions of the silicon layer and gate insulating layer over the gate pad such that a third through hole is formed through the gate insulating layer; and

forming a pixel electrode and a gate pad electrode on the passivation layer, and forming a gate pad electrode on the gate insulating layer such that the pixel electrode and data pad electrode electrically contact, respectively, the drain electrode and data pad, and such that the gate pad electrode electrically contacts the gate pad.

18. The method of claim 17, wherein the pixel electrode is formed in contact with an inner side surface of the drain electrode.

19. The method of claim 17, wherein the data pad electrode is formed in contact with an inner surface of the data pad.

20. The device of claim 17, wherein the pixel electrode is from a group consisting of indium tin oxide (ITO) and indium zinc oxide (IZO).